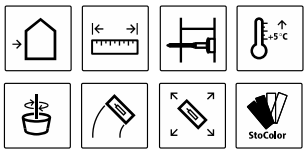
Sto Specification New Zealand

SS216R StoTherm Armat Refurbishment System on Masonry Insulation

StoTherm Armat Refurbishment System on Masonry Insulation
Selected insulation panels installed over existing masonry walls before rendering to insulate the existing exterior
BRANZ Appraisal No. 604 / CCANZ CP 01:2014
CAD Details www.sto.co.nz

Sto Registration: To register your project with Stoanz Ltd please email the completed specification to info@sto.co.nz



1. PROJECT DETAILS	
Specifier:	
Project and Address:	
Project Owner:	
Sto Warranty:	**StoTherm Armat Miral Refurbishment Render System 20-year Warranty with StoService Assurance**
StoTherm Armat Miral Refurbishment System on selected insulation panels over existing masonry. **Note: Stoanz Multiscreed or LevelLite** are approved basecoat renders.	The **StoTherm Armat Masonry Insulation Refurbishment System** incorporating: **Selected Insulation Panels** adhesive and mechanically fixed with **StoLevell Novo** and **StoTherm Anchors** over concrete and masonry construction, rendered in **StoLevell Novo** basecoat, sealed with **Stoplex W sealer** then rendered in **StoArmat Classic** meshed reinforced render finished in selected **Stolit coloured finishing render** coated with selected **StoColor facade paint** or **S-Protect SC sealer** on selected **Stolit MP and Milano finishes.** The **StoTherm Armat Render System** is built on 50 years of worldwide experience in insulating and refurbishing masonry buildings to achieve energy efficiency.
Select Insulation:	Select Insulation – White EPS, Graphite EPS, Mineral wool
Select Finishing Render:	Select
Select Facade Coating:	Select
Sto Registration Number: (Sto Use Only)	 i.e. 24.01_StoReg_ tec__sales__SS216R__project
Project Notes:	

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2. CONSTRUCTION & DETAILING

2.1 Responsibility

All work in this section shall be the responsibility of the Main Contractor, unless previously agreed in writing. Stoanz Limited accepts no responsibility for defective workmanship in relationship to the application of the Sto system, or for defects in the design, construction, or condition of the building, either as built or in relation to the works.

The Main Contractor is to ensure that they are fully conversant with exterior legislation requirements, the project specifications, and details, current Sto specification and Sto CAD details (www.sto.co.nz) and any specific requirements relating to the Main Contractor's responsibilities before any works commence. The Main Contractor is also responsible for the various subcontractors to ensure that all items relating to weathertightness, penetrations and dissimilar material junctions affecting the construction system are strictly in accordance with project specific details, manufacturer's instructions and Sto CAD details i.e. items such as roofs, soffits, openings, lights and security fittings, electrical wiring, flashings, deck membranes, dissimilar junctions etc. that abut, flash or penetrate the system. The Main Contractor shall also ensure that all exterior licensed work is undertaken by LBP registered contractors and the window and door joinery is installed in accordance with the project drawings, manufactures details and Sto CAD details. For building assembly tolerances, refer to MBIE Guide to Tolerances and NZS 4251:2007 render tolerances, which detail an acceptable deviation of +/- 3 mm over an 1800 mm straight edge.

A **Sto Quality Assurance Document** must be filled out as a record of the work undertaken by the Sto Contractor.

2.2 Existing Building Elements

The Sto masonry insulation specification addresses the refurbishment of the exterior surface of the wall only. All other building elements are specifically excluded from the specification. It is the responsibility of the owner or their agent to initiate a process to ensure that all the building elements are dimensionally sound, load bearing and watertight.

- **Existing Window & Door Joinery**

All joinery shall be checked that it is sound and all mitres, drain holes, vents etc. are working and clear. Joinery jambs and sills (excluding flashed free draining sill trays or joinery with flange drainage holes) must have a sealant bead applied to the perimeter at the render to joinery transition. **Note:** Joinery may require surveying by an appropriate professional to ensure the joinery is still sound and the junction to the masonry substrate is watertight.

- **Roofs, Fascia's, Deck, Roof Membranes, Outlets etc.**

All existing roofs, fascia's and deck or roof membranes must be checked to ensure they are in sound condition. Gutters, downpipes, rainwater heads, scuppers, overflows, fascia's, and flashings must be correctly detailed with flashings, drip edges and up stands to accommodate the new StoTherm Masonry Insulation System. The main contractor is to arrange for all fixtures and fittings, down pipes (install temporary down pipes), lights, security, and communications equipment etc. to be removed before the StoTherm Masonry Insulation System commences. Once finished all the refurbished items are to be reinstalled **StoTherm Power Bloc's, Zylinders, Spirals or Darts.**

- **Penetrations**

Penetrations such as waste pipes and fixing brackets shall be adequately flashed prior to the panel installation.
All piping and electrical wiring penetrations through the EPS must be weatherproofed as per Sto standard and/or project specific details. All wiring must be sleeved in PVC conduit and the terminations sealed using MS Sealant.

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- **Soffits**

After the insulation panels are installed, apply a 6-8 mm finishing bead of compatible MS Sealant after the render mesh coat is applied. The main contractor is to ensure any weatherproofing required behind the soffits or adjacent surfaces is carried out before the insulation panels are installed.

2.3 Insulation

Thermal resistance requirements of the building envelope shall be determined using the Schedule or Calculation methods of NZBC Acceptable Solution H1/AS1 for all housing and buildings up to 300 m^2 and NZBC Acceptable Solution H1/AS2 for housing and buildings greater than 300 m^2, or the Modelling method in H1/VM1. The minimum construction R-value for walls that do not contain embedded heating elements is R2.0, and for heated walls is R2.9.

Foundations: H1/AS2 require –Vertical edge insulation with an R -value of 1.0 m^2 K/W, installed on all exterior vertical faces of the concrete slab / wall footings, extending from the outermost top edge down to bottom of wall footing.

Rasped XPS sheets can be used for vertical edge insulation with 30 mm providing the required RV 1.0.

- **Selected EPS Insulation Panels**: 80 mm (R1.95) and 100 mm (R2.43) based on a thermal conductivity (k-value) of 0.041 W/m °C.
- **Selected Graphite EPS+ Insulation Panels**: 60 mm (R1.88), 80 mm (R2.5) and 100 mm (R3.13) based on a thermal conductivity (k-value) of 0.032 W/m °C.
- **Mineral Wool non-combustible panels**: 75 mm (R2.2) and 100 mm (R2.9) – above ground use only.

Note: Other insulation panel thicknesses and grades are available.

2.4 Control of External Fire

The specified Sto renders have been tested to EN 13501-1 and have achieved an A2-s1, d0 rating. The StoTherm Armat Miral Render System has been tested to ISO 5660.1 and achieved a peak heat release rate of less than 100 kW/m^2 and total heat released of less than 25 MJ/m^2. The system is therefore suitable for use on buildings at any distance to the relevant boundary.

3. SURFACE PREPARATION

3.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed. The Sto Contractor shall check that the existing substrates and building elements are acceptable for the insulation panel installation and rendering before proceeding. Where others install the insulation panel, a StoTherm QA is required to be filled out and the Sto Contractor shall satisfy themselves that the surface is acceptable before proceeding. Adequate protection of all dissimilar materials and adjacent surfaces must be under-taken before commencing.

3.2 Existing Substrate

All existing surfaces are to be checked they are sound and load bearing. Any cracks are to be cleaned out and loose or spalling render or concrete removed and repaired with the Sto concrete repair system.

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This work is to be carried out as a variation or PC sum unless previously identified and scheduled.

3.3 Fixtures & Fittings

The main contractor shall have removed all fittings and fixtures such as downpipes, rain-water heads, gas fitments, handrails, taps, lights etc that must be re fitted securely after the system is finished ensuring all connections are watertight. **Note:** Pipes, wiring and lights must be appropriately refitted and sealed.

3.4 Chemical Treatment

All surfaces to be refurbished are to be treated with a chemical solution to remove all fungal activity and contaminants, ensuring the stipulated reaction times are observed before washing off all residue during the cleaning process.

3.5 Cleaning

All surfaces to be treated shall be water blasted using a 3000 psi machine to remove all loose material, contaminants and debris supplemented by mechanical, chemical or hand scraping to remove all friable, defective or adhesion impairing material etc. to establish a clean sound load bearing substrate. Cracks or failed joints are to be stripped out as necessary to remove all defective material and coatings that are adhesion impairing will require removal.

Note: When using a water blaster, due care must be taken to avoid the building elements or adjacent surfaces being damaged from excessive water pressure.

3.6 Control Joints

Any existing control joints are to be expressed through the finished system using **Sto uPVC Control Joints**.

Note: Large façade faces should be broken with horizontal control joints or tape lines every two stories to enable the finishing render to be installed seamlessly.

3.7 Sealant Beads

All new sealant beads associated with the cladding system shall be a compatible **MS Sealant** applied in accordance with the manufacturers Technical Data Sheets. Existing sealant beads around the joinery, fittings and penetrations shall be checked and reinstalled as required before commencing with the insulation process.

4. SELECTED INSULATION PANEL INSTALLATION

4.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed.
If others fix the insulation panel, a Sto QA document must be signed off and the Sto Contractor shall satisfy themselves that the panels are acceptable before proceeding.

Adequate protection of all dissimilar materials and adjacent surfaces must be under-taken before commencing.

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4.2 Existing or New Joinery

All joinery should have been fixed over **waterproofing** prior to the render application. Before fixing new joinery, fill any holes in the rebates and use **StoFlexyl** mixed correctly (1:1 with fresh cement) and thin to a thick brushing consistency before applying two coats onto the **internal head, jamb and sill rebates** of the blocks including the rebated step. The **exterior head, jamb and sill rebates** are to be waterproofed with trowel applied **meshed StoFlexyl membrane** extending out over the StoTherm panels to the external edge (StoTherm panels are installed before the **StoFlexyl mesh coat** that is applied so that the mesh extends out to the external corner of the StoTherm panel covering the block to panel transition).

Sealing the joinery perimeter with MS Polymer sealant applied over a primer at the head and jambs forms the primary seal, while the sill is left open with a 5 mm drainage gap. To complete the waterproofing process **air seals** are required to be installed around all interior joinery to rebate openings.

StoFlexyl meshed waterproofing has been tested by BRANZ to AS/NZS 4858 as required by **CCANZ CP 01: 2014.**

Note: Joinery air seals and sealant (primer required) are the responsibility of the window installer.

Detailing: Sto pre-meshed drip edges are normally installed on the lintels and Sto pre-meshed corner angles around the reveals.

4.3 Insulated Reveals

To insulate the block reveals with 20 or 30 mm EPS panels, the internal rebate must be increased to provide approximately 25 mm rebate for the joinery by installing a fibre cement sheet packers (e.g., JH Axent Trim 89 mm wide x 19 mm thick) adhered with 5 mm of Sto Adhesive Mortar before the 20-30 mm thick EPS insulation panels are installed around the reveal and are reinforced with **StoFlexyl meshed waterproofing**. Where the existing joinery is being retained normally the revels are left uninsulated and just re rendered due to the tolerances.

4.4 Foundations Capillary Break

The foundations should be waterproofed with **StoFlexyl waterproofing** or another proprietary system. EPS panels that are to be used in ground as foundation insulation must have a thinned down coat of **StoFlexyl** brushed/rolled onto all faces before being installed with **StoFlexyl** adhesive.

Bituminous products should be sand/grit blinded or have a proprietary water based bituminous adhesive. A **StoFlexyl capillary break** is formed below the interior floor level and generally 150 mm above ground using a continuous **StoFlexyl meshed strip** adhered onto the masonry substrate by approximately 100 mm, extending out over the StoTherm panel previously adhered to the foundation. See the Sto CAD foundation details.

4.5 Parapets, Balustrades and Wall Caps

All rendered horizontal wall surfaces should have a minimum 10º fall and have **StoFlexyl meshed waterproofing** installed over the basecoat render. On parapets, balustrades, and wall caps, **StoFlexyl waterproofing** must be correctly mixed (drill mix 1:1 with fresh cement) and applied with a layer of Sto mesh embedded into the **StoFlexyl** coat giving a total film thickness of 1.5 mm. The meshed **StoFlexyl** should extend 75 mm up or down adjacent vertical surfaces as per Sto CAD details and be left to dry overnight. All **StoFlexyl waterproofing** is to be over coated in **StoArmat Classic meshed** reinforcement render.

StoFlexyl meshed waterproofing has been tested by BRANZ to **AS/NZS 4858** as required by **CCANZ CP 01:2014.**

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4.6 Penetrations

Penetrations such as waste pipes, fixing brackets and fixtures shall be installed on Sto EPS high density Power Bloc's. Power Bloc shall be installed at the same time as the insulation panel is installed. Sto EPS Zylinders, Sto EPS Spirals or Sto EPS masonry Iso Darts can be used after the panels are installed if Power Bloc has not been installed. All piping and electrical wiring penetrations through the insulation panels must be weatherproofed as per Sto and/or project specific details. All wiring must be sleeved in PVC conduit and the terminations sealed using a compatible MS Polymer Sealant.

4.7 Selected Insulation Panels

Starting from the Sto plinth foundation detail or a starter track, ensure the Selected Insulation panel layout is installed true from the base in a brick pattern with no continuous vertical joints, using alternating panels on the external corners. Install Sto uPVC, trays, channels, and flashings as required at termination points.

Use 600 x 1200 mm sized panels to avoid pillowing especially on uneven substrates. EPS panels are to be **manufactured** from white S-grade or graphite grey EPS to AS 1366.3. Ensure the **EPS Panel** layout is arranged in a **brick pattern with** no continuous vertical joints. If, after fixing, there are any gaps in the panel joints due to variations, **adhesive foam** shall be used to foam fill the gap before proceeding with the rendering.

Note: The minimum insulation thickness for countersunk fixings is 50 mm using **StoTherm impact anchors**. Ensure the substrate is suitable, i.e., sound, load bearing and straight as required before installing the insulation panels. Repair any defects.

4.8 Control Joints

All existing control joints in the blocks as designated by the project drawings must be brought through with a 10 mm gap in the panels. Control joints must be installed in the mesh coat using the **Sto uPVC Control Joints** ensuring the mesh coat does not overlay the "V" joint. Once dry, remove the cleaning tab, sealant fill any joints and either apply two coats of the selected paint and leave as a negative detail or fill with a compatible **MS Polymer Sealant** applied in accordance with the manufacturer's Technical Data Sheets.

4.9 Adhering Insulation Panels

The **selected insulation panels** shall be trued from the base, laid in a horizontal brick pattern, and incorporate a StoTherm insulated foundation detail. **The insulation panels** shall be fixed using a 10 mm notched trowel or **StoTherm notched trowel** by applying a full coat of **StoLevell Novo** to the back (not the sides) of the 600 x 1200 mm insulation panel. All panels are installed immediately while the adhesive is wet, tight butted and levelled on the **StoLevell Novo** adhesive. **They shall be allowed to set** before being mechanically fixed.
Insulation panel joints shall be tight butted and sheet joints, gaps etc. flush filled with low expansion adhesive polyurethane foam as per the manufacturer's Technical Data Sheets before the panels are rasped once cured to obtain a flat surface.

Note: Always ensure the back face of the panel is well coated right out to the panel edge (not sides) with **StoLevell Novo**. Depending on the substrate, the notch size may need to vary to compensate for irregularities in the surface. Always ensure there is enough adhesive applied to bond and bed the panels onto the surface - if required coat both surfaces.

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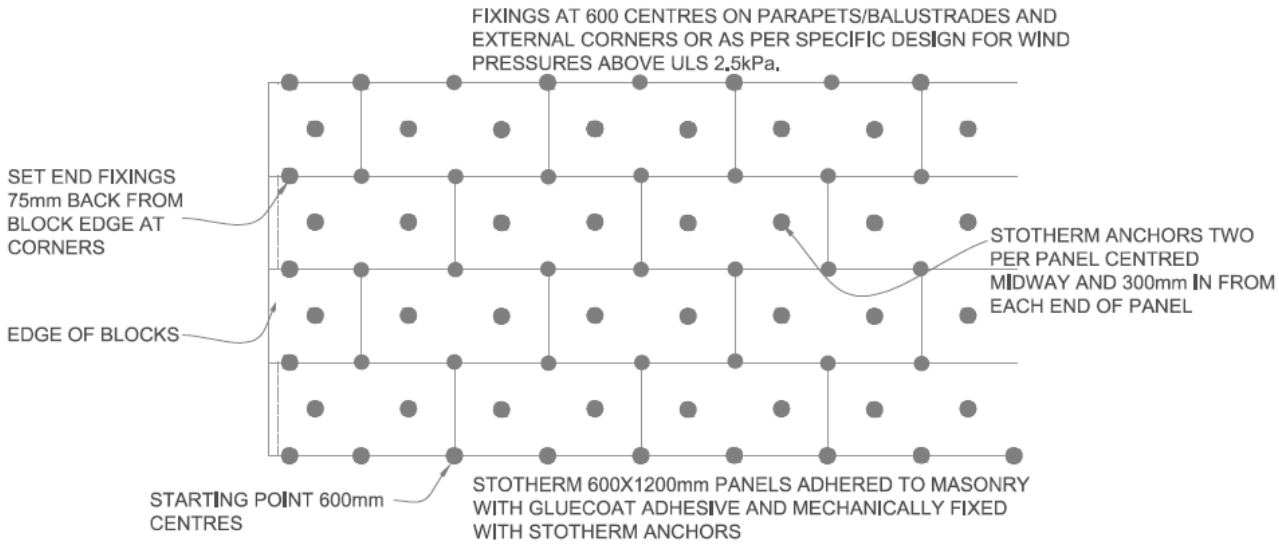
4.10 StoTherm anchors (fix in accordance with Sto CAD details)

Insulation panels are mechanically fixed in accordance with the StoTherm anchor pattern. Once the adhesive is set, use a rotary impact hammer drill with an 8 mm masonry bit at the designated fixing centres (note drill 5 mm extra). On 600 x 1200 mm panels, StoTherm Anchors are to be installed at the intersection of all panel corners with an additional two fixings centred midway through the panel, 300 mm in from the ends (refer to Figure 1).

Note: Detailing shall be in accordance with Sto CAD details. Panels at soffits and foundations (above the capillary line) are fixed at 600 mm centres, and external corner panels are staggered and fixed at 600 mm centres.

Figure 1: StoTherm Anchor Layout



StoTherm Anchors are placed in the pre-drilled holes and countersunk using the **ST fixing tool** attached to an electric drill with the **ST tool plate** stopping flush to ensure correct panel compression and security. All fixings are then plugged with the **Sto EPS insulation caps** set flush to eliminate thermal bridging.

StoTherm 75mm or 95mm Impact Fixings can be used for countersunk fixings using a **Sto Router tool** to cut the fixing hole in 60 or 80 mm panels that are then caped with EPS insulation caps.

Sto Ecotwist Anchors are available for 100 mm to 400 mm thick insulation panels. The fixings are placed in the pre-drilled hole and, using the Ecotwist MT fixing tool, are drilled below the surface with the 60 mm spiral head stopping on contact with the concrete wall. The small surface hole is plugged with a Sto VE EPS plug.

Note: For design wind pressures above 2500 Pa refer to Stoanz Limited.
XPS for in ground foundations must be rasped (2 x sides) for render adhesion.

4.11 Architectural Profiles and Banding

Architectural shapes used to create decorative detailing shall be correctly cut to size and fitted using **StoFlexyl adhesive** notch towelled to the back of the shape prior to placing. Profiles shall be pre-meshed or receive a **StoArmat** mesh coat and are placed after the wall reinforcement mesh coat with the perimeter edge meshed onto the wall.

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As required, construction fixings are used to mechanically fix large or heavy shapes, but care is required to avoid distortion. Joints are butted together using **StoFlexyl** and any control joints must be mirrored through the profile.

5. STOTHERM ARMAT RENDER SYSTEM

5.1 Responsibility

All work in this section, including provision of external sealant beads and finishing system, shall be the responsibility of the **Sto Contractor** who must assure themselves that the surfaces to be plastered are dry, free of contamination and satisfactory before work commences. Adequate protection of all adjacent surfaces shall be undertaken prior to commencing.

5.2 Selection

The **StoTherm Armat Render System** shall be carried out in stages incorporating: **StoLevell Novo** basecoat render**, Stoplex W sealer, StoFlexyl** waterproofing, **StoArmat Classic** meshed reinforcement render finished in the **selected Stolit K, MP** or **Milano** coloured finishing render coated in the **StoColor** façade paint or sealed with **S-Protect SC stay clean** clear sealer for selected **Stolit MP,** or **Milano** render.

5.3 Materials

Stoanz Ltd supplies all the following materials:

Selected Insulation Panels fully adhered with StoLevell Novo render	**StoLevell Novo basecoat render with Stoplex W sealer**
StoTherm uPVC pre meshed corner angles, finishing edges, drip edges etc.	**StoArmat Classic meshed reinforcement render**
Selected Stolit coloured finishing render	**Selected StoColor facade paint or S-Protect SC stay clean on Stolit MP or Milano finishes**
StoFlexyl waterproofing and Adhesive Foam for EPS insulation	**Sto Power Bloc, Sto Zylinder blocks, Sto Spirals, Iso Darts**

5.4 Detailing

The masonry joinery reveals, wall caps and foundations are to be detailed with **StoFlexyl meshed waterproofing** as per previous Clauses. **Sto pre-meshed corners, reveal drip edges, finishing edges and control joints** are lightly embedded in the **StoLevell Novo basecoat render** before being encapsulated in the **StoArmat Classic meshed reinforcement render**.

5.5 Basecoat Render

To clean, dry and sound StoTherm insulation panels that been lightly abraded to open the surface and level the joints, apply **StoLevell Novo** basecoat render by hawk and trowel at approximate thickness of 5-6 mm to leave an even, straight surface free of hollows and deviations. While the render is still wet, lightly embed **Sto uPVC pre meshed corners, drip edges** and **finishing edges** and reinforce any stress points with mesh butterflies. Once set remove any ridging or bumps in the basecoat with a Sto feathered straight edge, Grid Plane or Sto rasp and leave ready for the **StoArmat** reinforcing coat.

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Application procedures for the **StoLevell Novo** must be in accordance with the Sto Technical Data Sheets.

Note: Ensure the **StoFlexyl meshed waterproofing** over the **wall caps** and around the **joinery openings** is undertaken over the dry basecoat before the **StoArmat** meshed reinforcing coat.

5.6 Sealer

To clean, dry **StoLevell Novo** basecoat render that has been rasped flat, apply one coat of **Stoplex W** primer by brush and roller to seal the surface at approximately 8 m² per litre.

5.7 StoArmat Classic reinforcement render
StoArmat Classic HD with hardener for accelerated drying in cold damp weather are also available.

To clean, dry, base coated surfaces apply an even coat of the selected **StoArmat Classic** render by hawk and trowel at approximately 2 mm thick and while the **StoArmat Classic** is still wet, lightly apply **Sto mesh** ensuring adjacent drops of mesh are overlapped by a minimum 75 mm and float the surface to ensure the mesh has been embedded in and allow to dry. Apply a further coat of **StoArmat Classic** at approximately 1.5 mm (min DFT 2.5 mm) by hawk and trowel to cover the mesh and leave an even surface plane free of voids or deviations.

Once dry, remove any slight ridges etc. with a Sto rasp ready for subsequent render. **StoArmat Classic** must be installed in accordance with the Sto Technical Data Sheets. Always install **Sto pre-meshed uPVC drip edges** on lintels and joinery heads, **Sto pre-meshed** corner angles on external corners and **Sto pre-meshed finishing edges** as detailed.

5.8 Sealant

All junctions or detailing between the render mesh coat and dissimilar materials shall be sealed with compatible exterior MS Sealant in accordance with the manufacturer's Technical Data Sheets. A primer is required on **StoFlexyl surfaces** and as required on PVC, porous substrates, and dissimilar materials.

Note: The joinery sills must remain unsealed and open to permit ventilation of the window trim cavity.

5.9 Stolit Float Finish Renders (refer to header for selected finish)
Stolit K texture is available in a flat 1.0, - 1.5, 2.0, 3.0 mm aggregate as selected.

- **Stolit K coloured finishing render as selected**

Apply the selected **Stolit K** coloured finishing render to prepared rendered surfaces with a stainless-steel trowel, gauging to the thickness of the aggregate size. Finish with a plastic float to the requisite pattern and allow to dry (normally overnight). The spreading rate shall be approximately 12 m^2 per pail (1.0 mm), 9 m^2 per pail (1.5 mm), 7 m^2 per pail (2.0 mm) and 4 m^2 per pail (3.0 mm).

- **StoColor Façade Paint**

It is recommended that all **Stolit K** surfaces receive two (2) coats of **StoColor Maxicryl or StoColor Dryonic** façade paint tinted to the selected colour and applied by brush and roller at approximately 6-8 m² per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 7. StoService** for recoating requirements.

Note: Always maintain wet edges between cutting in and roll in tight to ensure an even film build is maintained.

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5.10 Selected Stolit MP Finished Renders (refer to front page for selected finish)
Stolit MP fine coloured finish, MP Natural salt & pepper sand, RMP Sponge coarser salt & pepper sand

- **Selected Stolit MP, MP Natural, and RMP Sponge coloured finishing render**

Stolit MP fine, MP Natural sandy and **RMP Sponge sandy** are coloured finishing renders applied in two (2) coats. A basecoat of the selected **Stolit MP** or alternatively, depending on the finish, **Stolit K 1.0 mm** tinted to the selected colour, is applied, and allowed to dry. The finishing coat of **Stolit MP, MP Natural, or RMP Sponge** is then applied, float finished and randomly lightly sponged. Alternatively, the finish can be float finished, sponged, or smooth finished with a S/S Marmorino trowel to the selected pattern. The spreading rate of the **Stolit MP**, **MP Natural or RMP Sponge** is approximately 12-14 m^2 per pail.

- **S-Protect SC Stay Clean Invisible Silane Sealer (clear sealer)**

To clean, dry selected **Stolit MP**, apply an even coat of **S-Protect SC stay clean** hydrophobic sealer (clear invisible Silane sealer) in a flood coat using a low-pressure sprayer and Sto block brush to work the product into the Stolit render, avoiding runs and brushing in any lingering drips etc. so they do not show up. Surfaces must be well coated, and it is recommended to work in a pattern preferably out of the sun to ensure that there are no misses as the sealer is invisible once dry.

Note: All joinery, glazing, and adjacent surfaces must be masked off to prevent the **S-Protect SC Stay Clean** contaminating the surface. Any excess product must be removed after 15 minutes to avoid a surface film forming that can be difficult to remove. Refer **Section StoService** for recoating requirements.

- **StoColor façade paint (paint finish if selected)**

If selected it is recommended that all **Stolit MP** surfaces receive two (2) coats of **StoColor Maxicryl, or StoColor Dryonic** façade paint tinted to the selected colour and applied by brush and roller at approximately 6-8 m^2 per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 7. StoService** for recoating requirements. **Note:** Always maintain wet edges between cutting in and roll in tight to ensure an even film build is maintained.

5.11 Stolit Smooth Finish Render

- **Stolit Milano coloured finishing render**

Stolit Milano is a smooth pre-coloured finish applied in two (2) or three (3) coats.

A basecoat of **Stolit Milano** or **Stolit K 1.0 mm** tinted to the selected colour is applied and allowed to dry before the finishing coats of **Stolit Milano** are applied and steel troweled, floated or lightly randomly burnished to the selected pattern. The spreading rate of the Stolit Milano is approximately 18 m^2 per pail.

- **S-Protect SC Stay Clean Invisible Silane Sealer (clear sealer)**

To clean, dry **Stolit Milano**, apply an even coat of **S-Protect SC stay clean** hydrophobic sealer (clear invisible Silane sealer) in a flood coat using a low-pressure sprayer and Sto block brush to work the product into the Stolit render, avoiding runs and brushing in any lingering drips etc. so they do not show up. Surfaces must be well coated, and it is recommended to work in a pattern preferably out of the sun to ensure that there are no misses as the sealer is invisible once dry. **Note:** All joinery, glazing, and adjacent surfaces must be masked off to prevent the **S-Protect SC Stay Clean** contaminating the surface. Any excess product must be removed after 15 minutes to avoid a surface film forming that can be difficult to remove. Refer **Section 7. StoService** for recoating requirements.

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6. GENERAL NOTES

6.1 Colour

As selected by the client or specifier, Stoanz Limited recommends that the selected colour must have a minimum Light Reflectance Value (LRV) of 25%. Where a colour less than 25% LRV but above 10% is selected, the render system is finished with two coats of **StoColor Dryonic a Sto iQ coating** with **X-Black technology additive** to avoid thermal stress.

StoColor Dryonic façade paint with **Sun blocker** and **fast dry film biomimetics**. is available in the StoColor range, with other colours available depending on formulation.

7. STOSERVICE ASSURANCE

7.1 StoService - Refer to StoService Documents for comprehensive guide.

It is the owner's responsibility to clean the Sto System annually by low pressure washing or hosing down to remove surface contaminants with special attention to sheltered areas, as required, use a proprietary house wash sprayed on first with a low-pressure garden spray in accordance with the manufactures instructions. The owner is also responsible for organising the maintenance in accordance with the 3-yearly StoService Schedule available online www.sto.co.nz.

After cleaning a visual inspection is to be undertaken by the person undertaking the annual maintenance to check for any physical damage or faults in the exterior building elements, to ensure any damage or defects are identified and repaired.

To assist the property owner in establishing a regular maintenance cycle, the property owners email address can be registered with service@sto.co.nz. Stoanz Limited will then provide 2½ yearly reminder notices that the property is due for the 3-yearly StoService.

Depending on the prevailing environmental conditions and the service record, recoating of the paint finish is normally required at the 10 to 12½ -years where two coats were applied or 8-year period where one coat of paint or S-Protect Silane was applied, to maintain long-term integrity. This is carried out using a **StoColor Coating System or S-Protect System** applied in accordance with a Sto specification. Where a colour change is required, Stoanz Limited should be consulted.

8. WARRANTY

8.1 StoTherm Armat Refurbishment Render System 20-year Warranty with StoService Assurance

When the **StoTherm Armat Refurbishment Render System** is applied in accordance with the Sto specification, Sto details and Sto PS3 Quality Assurance schedule, a warranty is available for the Sto System for twenty (20) years from the date of practical completion, provided maintenance requirements as set out in the StoService Schedule are followed.

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SS216R StoTherm Armat Refurbishment System on Masonry Insulation

This is to comply with the relevant clauses in the New Zealand Building Code for this type of building element.

The Sto Warranty is supplied by Stoanz Limited to the Sto Contractor who signs off the work on completion of the project. Stoanz Limited confirms the materials supplied have been appraised and are fit for purpose provided that:

a) All specified work is carried out by a registered Sto Contractor who must complete the Sto Quality Assurance Schedule, submit the Sto Warranty Request, and sign off the five-year PS3 Workmanship Warranty.

b) All work is carried out in accordance with this Specification, or any written amendments issued by Stoanz Limited.

c) The warranty does not cover situations where the Render system is subjected to damage, physical disturbance, chemical contamination, or interference.

d) The masonry substrate under the render must be structurally sound. Cracks in the substrate that reflect through the render are not covered by the StoWarranty.

9. DISCLAIMER

9.1 Disclaimer

The information contained in this specification is based on our findings, experience, testing and certification at the revision date. End users are still responsible for establishing the suitability of the specified products regarding their intended use. No liability is undertaken for use of this information outside of Stoanz Limited parameters or for the substrates, design, construction, and project site conditions that are outside of Stoanz Limited's control. Where a Sto registered contractor applies Stoanz purchased products in accordance with the Sto Specifications, Material Technical Data Sheets and Sto Details, a Sto Material Warranty document is available, but the installation of the materials remains the responsibility of the Sto Contractor who provides the PS3 Warranty. Any warranty is conditional on the system being maintained and serviced in accordance with the StoService documentation. Stoanz reserves the right to alter or update information and formulations at any time without prior notice.

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